

Application No. 10/087,541  
Amendment dated March 15, 2007  
Response to Office Action dated December 15, 2006

## **REMARKS**

### **Introduction**

Claims 1-15, 17, and 19 remain herein. Claims 1-7 and 11 remain withdrawn. Claims 16 and 18 were canceled without prejudice or disclaimer by prior amendment. New claims 20-27 are added. Support for new claims 20-27 can be found throughout Applicant's originally filed specification, claims, and drawings, including, for instance, at page 5, lines 3-8, page 13, line 20 – page 14, line 6, and page 16, lines 9 – 11, of the specification. The Office Action dated December 15, 2006, rejected claims 8-10 and 12-19, under 35 U.S.C. §103(a) as being unpatentable over Eriksson et al. in view of Arnold et al. Reconsideration and prompt allowance are respectfully solicited.

### **Rejection of Claims 8-10, and 12-19 Under 35 U.S.C. §103(a)**

The Office Action, at page 2, rejected claims 8-10 and 12-19 under 35 U.S.C. §103(a) as being unpatentable over Eriksson et al. in view of Arnold et al. The rejection is respectfully traversed. Reconsideration is respectfully requested.

Claim 8 recites a method for peptide modification evaluation including features of “apportioning said spectral range for the at least one modified query peptide into a plurality of mass intervals,” and “distributing the mass ratios for the fragments of the at least one modified query peptide over one or more of the plurality of mass intervals.” Claim 8 also includes features of “excluding or adjusting modified mass ratios in the mass interval that correspond to at least one predetermined ion type of the fragments.”

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Claim 8 likewise includes features of "comparing the modified mass ratio for the one or more remaining fragments with mass ratios for fragments associated with at least one known peptide fragmentation spectrum adjusted to account for the modification in the mass interval," as well as "scoring the mass ratio comparisons," and "summing the scored mass ratio comparison over the plurality of mass intervals to generate a summed score." Claim 8 further includes "identifying at least one known peptide best matching the at least one modified query peptide when taking the mass of the modification into account, based on the summed score."

Eriksson et al., as conceded in the Office Action, fails to disclose or suggest peptide modification evaluation that includes features of "distributing the mass ratios for the fragments of the at least one modified query peptide over one or more of the plurality of mass intervals," but instead describes block comparison to whole molecular weights. Eriksson et al. is in one respect directed not to scoring decompositions of fragments, but overall comparison scores to determine whether the significance of a potential match exceeds a random scoring threshold. See, e.g., Eriksson et al., col. 10, lines 52-65. Arnold et al., cited in the Office Action to cure the deficiency of Eriksson et al., describes comparison of bacterial mass spectra over certain intervals (e.g., page 635, first column). Neither Eriksson et al., Arnold et al., nor their combination, even if combination were proper, however, discloses or suggests the overall peptide modification evaluation method as claimed, including "summing the scored mass ratio comparison over the plurality of mass intervals to generate a summed score," which summed score can be used to identify "at least one known peptide best matching the at least one modified query peptide."

Neither Eriksson et al., Arnold et al., nor their combination, even if combination were

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proper, discloses or suggests further features of claim 8, "excluding or adjusting modified mass ratios in the mass interval that correspond to at least one predetermined ion type of the fragments." According to various embodiments as claimed in claim 1, the peptide modification evaluation thereby can in one regard compensate for certain ion modifications whose modified mass ratios might lie in a mass interval, by excluding or adjusting those ratios. Improved accuracy and computational efficiency can result. Neither Eriksson et al., Arnold et al., singly or together, discloses or suggests a method as claimed in claim 8 including any attempt to exclude or adjust modified mass ratios of one or more predetermined ion types. The rejection of claim 8 based on Eriksson et al. in view of Arnold et al. under 35 U.S.C. §103(a) is overcome. The rejection is respectfully traversed. The rejection is overcome. Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 16 and 18 are canceled. Claims 9, 10, 12-15, 17, and 19 distinguish over Eriksson et al. in view of Arnold et al. for at least the same reasons as claim 8 does, from which they depend. The rejection of claims 9, 10, 12-15, 17, and 19 is respectfully traversed. Reconsideration and withdrawal of the rejection are respectfully requested. New claims 20-27 also distinguish over Eriksson et al., Arnold et al., and the other art of record.

**Rejection of Claims 8-10 and 12-19 for Obviousness-Type Double Patenting**

The Office Action maintained the provisional rejection of claims 8-10 and 12-19 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the claims of copending Application No. 10/241,751. Claims 16 and 18 are canceled. Applicant

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respectfully traverses the provisional double-patenting rejection of claims 9, 10, 12-15, 17, and 19, including for all the reasons stated in the amendment filed March 13, 2006. Applicant reiterates that should this rejection be maintained, applicant will consider the filing of a Terminal Disclaimer as appropriate upon indication that the claims of the present application, being examined, are otherwise allowable. The Examiner is invited to telephone the undersigned to discuss a Terminal Disclaimer if the Examiner maintains the provisional rejection, although reconsideration and withdrawal of the provisional rejection are respectfully requested.

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**CONCLUSION**

In view of the foregoing amendments and remarks, applicant respectfully requests favorable reconsideration of the present application and a timely allowance of the pending claims.

Should the Examiner deem that any further action by applicant or applicant's undersigned representative is desirable and/or necessary, the Examiner is invited to telephone the undersigned at the number set forth below.

If there are any other fees due in connection with the filing of this response, please charge the fees to deposit Account No. 50-0925. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,



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